

ABSTRACT AMENDMENT

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Abstract of the Disclosure

The present invention provides a disc-shaped eccentric rotor having at least two air-core coils. The rotor includes a flat commutator member having a central shaft insertion through hole, commutator land segments arranged around the shaft insertion through hole on a first side of the flat commutator member, wound air-core coil arrangement guides located around the shaft insertion through hole on a second side of the flat commutator member, air-core coil end portion connection lands arranged circumferentially on the second side of the flat commutator member, a shaft holder installed around the shaft insertion through hole on the second side of the flat commutator member, and wound air-core coils installed at the wound air-core coil arrangement guides and having end portions connected to the air-core coil end portion connection lands. The air-core coils of bigger sizes are uniformly arranged on the commutator member, so that high efficiency and easy Installation can be achieved. The arrangement of the air-core coils offsets the center of gravity from the geometrical centroid of the rotor, and there is no need for an additional eccentric member. Since the printed wiring air-core coil is thinner than the wound air-core coil, an eccentric weight is installed on the printed wiring air-core coil so that a great amount of vibration may be obtained during rotation of the rotor.